

WHAT WE CLAIM IS;

1. A method for estimating the origin time, the hypocentral distance, and the scale from time-series measured data of the electric field intensity which is  
5 observed accompanying a seismic ground motion, the method comprising collecting and storing measured data of the electric field intensity; detecting the origin time from the starting time of electric field increase; and estimating the hypocentral distance and the scale from the elapsed time from  
10 said origin time and said measured data.

2. A method as claimed in claim 1, wherein the hypocentral distance D and the scale M are predicted from the relation between the elapsed time t from said origin time and an electric field intensity E(t) at the time t, by using  
15 two or more measured data based on the following formula:

$$E(t) = a10^M / \{D - r(t)\}^b$$

where a, b: constants which depend on geology and electric field observing system; and

r(t): distance between hypocenter and P wave front at  
20 time  $t = t \times \text{Speed of P wave}$

3. A method as claimed in claim 1 or 2, wherein the origin time, the hypocentral distance, and the scale are predicted by also using a seismograph for measuring seismic waves.

25 4. An apparatus for estimating the origin time, the hypocentral distance, and the scale from time-series measured data of the electric field intensity which is observed accompanying a seismic ground motion, the apparatus

comprising a measuring means for measuring the electric field intensity; a data storing means for collecting and storing measured data from said measuring means; and a data analyzing means for analyzing measured data stored in said storing means to detect the origin time from the starting time of electric field increase and to predict the hypocentral distance and the scale from the elapsed time from said origin time and said measured data.

5. An apparatus as claimed in claim 4, wherein said analyzing means predicts the hypocentral distance D and the scale M from the relation between the elapsed time t from said origin time and an electric field intensity E(t) at the time t, by using two or more measured data based on the following formula:

$$E(t) = a10^M / \{D - r(t)\}^b$$

where a, b: constants which depend on geology and electric field observing system; and

r(t): distance between hypocenter and P wave front at time t = t × Speed of P wave

6. An apparatus as claimed in claim 4 or 5, further comprising a seismograph for measuring seismic waves, wherein said data analyzing means predicts the origin time, the hypocentral distance, and the scale by also using measured data of said seismograph together with the other data.